TITLE

LOTTERY SERVICE SYSTEM AND LOTTERY SERVICE METHOD UTILIZING AN INTEGRATED CIRCUIT CARD

CLAIM OF PRIORITY

This application makes reference to, incorporates the same herein, and claims all benefits accruing under 35 U.S.C. §119 from my application *LOTTERY TICKET SERVICE SYSTEM FOR USING INTEGRATED CIRCUIT CARD AND METHOD FOR IT* filed with the Korean Industrial Property Office on the 21st of March 2000 and there duly assigned Serial No. 14201/2000.

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a lottery service system utilizing an integrated circuit card (hereinafter, referred to as IC card), and more particularly to a lottery service system, which includes a terminal for displaying a user interface showing various services for the user of the IC card according to fund information stored in the IC card, and a server capable of communicating with the terminal so as to provide the user with the service selected by the user, so that the user can utilize not only a communication service, but also an additional lottery service, by means of the IC card, in which fund information for paying a charge for the communication service is stored.

Further, the present invention relates to a lottery service method provided by the lottery

1 service system having a terminal and a server, in which information of a lottery ticket sold to a user

2 of an integrated circuit card is encoded, and the user is confirmed by verifying the encoded value

3 when the winnings are paid, so that security can be firmly maintained when the lottery ticket is sold

4 and the winnings are paid.

Description of the Related Art

6 Integrated circuit (IC) cards in the form of credit cards, telephone cards, and department store

7 cards are currently in use, and the use of IC cards has been gradually spreading since IC cards are

8 easier to use and store than cash. Integrated circuit cards are also sometimes known as smart cares.

9 When a debit card or a direct payment card, which is an IC card capable of paying a charge

10 by subtracting the charge directly from a bank account, is activated, the card functions just as cash,

11 can be used in place of cash, and can be continuously used on condition that the card is recharged

12 or the bank account has a sufficient balance.

13 IC cards are used in various systems including a credit system utilized in markets dealing in

14 various lines of merchandise, a banking system dealing with payments and deposits, and various

15 accounting systems used in hospitals, restaurants, etc.

16 In general, an IC card includes an interface for carrying out communication between external

17 systems and internal systems such as a microprocessor and a memory, where an IC card reader/writer

18 installed in the external system reads/writes the information. Further, the orders received in the

19 external device are decoded by a control program contained in the IC card, and access to the data

20 stored in the memory is executed according to an operation program stored in the memory, and then

1   the result of the memory access is sometimes transmitted to the external system.

2   The IC card as described above is being widely used since it is rechargeable and has a

3   superior security than existing magnetic cards having a magnetic tape on which information is

4   recorded.

5   In the meantime, in recent times, lottery tickets and the lottery services are being diversified

6   and the sales of the lottery tickets are gradually increasing.

7   In the conventional lottery ticket selling method, a user can purchase a lottery ticket from a

8   dealer such as a bank or a street peddler by paying cash for the lottery ticket, and the user can be paid

9   winnings from the bank or receive a new lottery ticket in place of the winnings when his or her

10   lottery ticket has won the lottery.

11   According to the conventional lottery ticket selling method, the user cannot purchase the

12   lottery ticket without cash, and the lottery ticket cannot be sold without a person as vendor since the

13   charge for the lottery ticket is always paid by cash.

SUMMARY OF THE INVENTION

15   Accordingly, the present invention has been made in an effort to solve the problems

16   occurring in the related art, and it is an object of the present invention to provide a lottery service

17   system which includes a terminal for displaying a user interface showing various services for the

18   user of the IC card according to fund information stored in the IC card, and a server capable of

19   communicating with the terminal so as to provide the user with the service selected by the user, so

20   that the user can utilize not only a communication service, but also an additional service of a lottery

1   service, by means of the IC card, in which fund information is stored.

2   It is another object of the present invention to provide a lottery service method provided by

3   a lottery service system having a terminal and a server, in which information of a lottery ticket sold

4   to a user of an integrated circuit card is encoded, and the user is confirmed by verifying the encoded

5   value when the winnings are paid, so that security can be firmly maintained when the lottery ticket

6   is sold and the winnings are paid.

7   In accordance with one aspect of the present invention, there is provided a lottery service

8   system including an integrated circuit card, a server, and a terminal interconnected to the server

9   through a network. The terminal includes a card reader section for reading/writing information in

10   the integrated circuit card, the card reader section recording a subtraction of a service charge for a

11   user of the integrated circuit card from fund information stored in the integrated circuit card; a card

12   verification section for verifying an availability of the integrated circuit card read by the card reader

13   section; a display section for displaying a user interface of a lottery service provided for the user of

14   the integrated circuit card; an input section, through which the user inputs necessary information,

15   according to the user interface displayed on the display section; a memory section for storing

16   information from the user interface displayed on the display section; and a first communication

17   section interconnected to the network, so as to transmit the information of the integrated circuit card

18   read by the card reader section and the information inputted through the input section to the server,

19   and to receive the information transmitted from the server, and the server includes a second

20   communication section interconnected to the network, so as to transmit and receive a kind of the

21   lottery service selected by the user and information about a lottery ticket sold to the user; a lottery

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1   ticket sale information storage section for storing the information about the lottery ticket sold

2   through the terminal as a database; a lottery ticket information generation section for generating an

3   intrinsic identification code of the lottery ticket sold to the user; a cipher algorithm section in which

4   a verification cipher algorithm generating a cipher value with respect to the information received by

5   the terminal is stored; a lottery ticket purchaser verification section for comparing the cipher value

6   generated in the cipher algorithm section when winnings are paid with a cipher value stored in the

7   lottery ticket sale information storage section, so as to confirm the integrated circuit card; and a

8   control section for controlling sections of the server, so as to provide the service selected by the user.

9   The integrated circuit card may include a memory section capable of recording and erasing

10   information, the memory section storing card information in relation to the integrated circuit card

11   and fund information for paying the service charge for the lottery service; a cipher algorithm section

12   in which a verification cipher algorithm generating a cipher value with respect to the information

13   stored in the memory section of the integrated circuit card is stored; and an input/output section for

14   transmitting information stored in the memory section to external systems and receiving information

15   transmitted from the external systems.

16   Further, the memory section of the integrated circuit card includes a manufacturer sector in

17   which information in relation to a manufacturer of the integrated circuit card is stored; an issuer

18   sector, in which information in relation to an issuer of the integrated circuit card is stored; a fund

19   information sector, in which fund information capable of being expended by the integrated circuit

20   card is stored; a fund information backup sector, in which the fund information stored in the fund

21   information sector is backed up; a card verification key sector, in which a card verification key for

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1 confirming if the integrated circuit card is available is stored; and a user sector, in which lottery

2 ticket information of the lottery ticket purchased in the terminal by means of the integrated circuit

3 card is stored, wherein the lottery ticket information includes at least one of the type of the lottery

4 ticket, a lottery ticket dedicated fund, lottery ticket deposits, personal information of the purchaser,

5 details of the purchase of the lottery ticket, an intrinsic purchase identification code of the lottery

6 ticket, a secret purchase code of the lottery ticket, and a winning identification code of the lottery

7 ticket.

8 Moreover, the intrinsic identification code may include one of the intrinsic purchase

9 identification code, which is generated when the user purchases the lottery ticket, and the winning

10 identification code, which is generated when the lottery ticket sold to the user is a winning ticket.

11 In addition, the present invention also provides a lottery service method utilizing a lottery

12 service system including an integrated circuit card, a server, and a terminal interconnected to the

13 server through a network, the lottery service method including: a card verification step, in which if

14 the integrated circuit card is an available card is determined by confirming a card verification key

15 stored in the integrated circuit card, when the integrated circuit card is inserted into the terminal; a

16 lottery ticket selling service step, in which, when the integrated circuit card is an available card, if

17 a service selected by a user is a lottery service is confirmed, and the user is required to select a kind

18 of the lottery ticket service in the terminal, and then a lottery ticket selling service is carried out

19 according to the kind of the lottery ticket service selected by the user; and a winnings payment

20 service step, in which, when the user requires a payment of winnings, if the user's integrated circuit

21 card is the same as the integrated card used in utilizing the lottery ticket selling service is confirmed

in the server, and then a winnings payment service is carried out in the terminal so as to pay the winnings to the user in the terminal.

When the kind of the lottery ticket service selected by the user is a lotto type lottery service, the lottery ticket selling service step may include requiring the user, who want to purchase the lottery ticket, to input a user identification code, and then transmitting the user identification code inputted by the user to the server, by means of the terminal; checking the user identification code, and then, when the user is an adult, transmitting a checked result of the user identification code to the terminal, by means of the server; requiring the user to input personal information of the user and details of a purchase of the lottery ticket, when the user is an adult, by means of the terminal; collecting a price of the lottery ticket by balancing, that is, debiting, the price from a fund stored in the integrated card according to the details of the purchase of the lottery ticket, and then transmitting the personal information and the details of the purchase to the server, by means of the terminal; storing the personal information and the details of the purchase, and generating an intrinsic purchase identification code of the lottery ticket which is sold to the user and transmitting the intrinsic purchase identification code to the terminal, by means of the server; and storing the personal information, the details of the purchase, and the intrinsic purchase identification code in the integrated circuit card, by means of the terminal.

Further, when the kind of the lottery ticket service selected by the user is an instant type lottery service, the lottery ticket selling service step includes the steps of: requiring the user, who want to purchase the lottery ticket, to input a user identification code of the user, and then transmitting the user identification code inputted by the user to the server, by means of the terminal;

checking the user identification code, and then, when the user is an adult, transmitting a checked

result of the user identification code to the terminal, by means of the server; collecting a price of the

lottery ticket by balancing the price from a fund stored in the integrated card according to the details

of the purchase of the lottery ticket, and requesting the server to transmit a lottery ticket number,

when the user is an adult, by means of the terminal; generating a lottery ticket number and checking

if the lottery ticket number is a winning number, and then, when the lottery ticket number is the

winning number, storing the winning number and transmitting the lottery ticket number and the

winning number to the terminal, by means of the server; requiring the user to select a winnings

payment method, and then transmitting the winnings payment method, selected by the user, to the

server, when the lottery ticket number is the winning number, by means of the terminal; and storing

the winnings payment method in the server.

Furthermore, the lottery ticket selling service step may further include the steps of: requiring

the user to input a secret purchase code, by which the user of the integrated circuit card can be

confirmed when the winnings are paid, and transmitting the secret purchase code, inputted by the

user, to the server, by means of the terminal; and generating a cipher value for the secret purchase

code by means of a verification cipher algorithm in the server, and storing the cipher value in the

server.

Also, the lottery ticket selling service step may further include the steps of: reading card

information, which is assigned when the integrated circuit card is issued, and transmitting the card

information to the server, by means of the terminal; and generating a cipher value for the card

information by means of a verification cipher algorithm in the server, and storing the cipher value

1   in the server.

2   Also, the lottery ticket selling service step may further include the steps of: generating a

3   cipher value for a card secret key and card information of the integrated circuit card, which are

4   assigned when the integrated circuit card is issued, by means of a verification cipher algorithm in

5   the integrated circuit card, and transmitting the cipher value to the terminal from the integrated

6   circuit card; transmitting the cipher value, received from the terminal, to the server from the

7   terminal; and storing the cipher value for the card secret key and the card information in the server.

8   The lottery ticket selling service step may further include the steps of: reading intrinsic

9   lottery ticket information, which is assigned when the integrated circuit card is issued, and

10   transmitting the intrinsic lottery ticket information to the server, by means of the terminal; and

11   generating a cipher value for the intrinsic lottery ticket information by means of a verification cipher

12   algorithm in the server, and storing the cipher value in the server.

13   The lottery ticket selling service step may further include the steps of: generating a winning

14   identification code in the server, and transmitting the winning identification code to the terminal

15   from the server, and then generating and storing a cipher value for the winning identification code

16   by means of a verification cipher algorithm in the server, when the lottery ticket number generated

17   in the server is a winning number; and storing the winning identification code, received from the

18   server, in the integrated circuit card by means of the terminal.

19   It is preferred that the winnings payment service step includes the steps of: reading

20   information stored in the integrated circuit card, and transmitting the information to the server, by

21   means of the terminal, after carrying out the lottery ticket selling service step; generating a first

cipher value for the information, which is transmitted from the terminal, by means of a verification

cipher algorithm in the server, comparing the first cipher value with a second cipher value, which

is already stored in the lottery ticket selling service step, so as to refer a result of the lottery in the

server, and then transmitting a checked result to the terminal from the server; and paying winnings

to the user in the terminal when the lottery ticket is the winning ticket.

BRIEF DESCRIPTION OF THE DRAWINGS

A more complete appreciation of the invention, and many of the attendant advantages

thereof, will be readily apparent as the same becomes better understood by reference to the following

detailed description when considered in conjunction with the accompanying drawings in which like

reference symbols indicate the same or similar components, wherein:

FIG. 1 is a schematic block diagram of a lottery service system according to the present

invention;

FIG. 2 is a memory map for showing sectors in a memory section of an integrated circuit card

employed in a lottery service system according to the present invention;

FIGs. 3A to 3C show a flow chart of a lotto type lottery ticket selling service according to

the first embodiment of the present invention;

FIG. 4 is a flow chart of a winning reference service of a lotto type lottery ticket according

to the present invention;

FIG. 5 is a flow chart of a small winnings payment service of a lotto type lottery ticket

1 according to the present invention;

2 FIG. 6 is a flow chart of a large winnings payment service of a lotto type lottery ticket sold

3 according to the lotto type lottery ticket selling service as shown in FIGs. 1 to 3;

4 FIG. 7 is a flow chart of a lotto type lottery ticket selling service according to the second

5 embodiment of the present invention;

6 FIG. 8 is a flow chart of a large winnings payment service of a lotto type lottery ticket sold

7 according to the lotto type lottery ticket selling service as shown in FIG. 7;

8 FIG. 9 is a flow chart of a lotto type lottery ticket selling service according to the third

9 embodiment of the present invention;

10 FIG. 10 is a flow chart of a large winnings payment service of a lotto type lottery ticket sold

11 according to the lotto type lottery ticket selling service as shown in FIG. 9;

12 FIGs. 11A and 11B show a flow chart of an instant type lottery ticket selling service

13 according to the fourth embodiment of the present invention;

14 FIG. 12 is a flow chart of a winnings payment service of an instant type lottery ticket sold

15 according to the instant type lottery ticket selling service as shown in FIGs. 11A and 11B;

16 FIGs. 13A and 13B show a flow chart of an instant type lottery ticket selling service

17 according to the fifth embodiment of the present invention;

18 FIG. 14 is a flow chart of a winnings payment service of an instant type lottery ticket sold

19 according to the instant type lottery ticket selling service as shown in FIGs. 13A and 13B;

20 FIG. 15 is a flow chart of an instant type lottery ticket selling service according to the sixth

21 embodiment of the present invention;

1   FIG. 16 is a flow chart of a winnings payment service of an instant type lottery ticket sold

2   according to the instant type lottery ticket selling service as shown in FIG. 15;

3   FIGs. 17A and 17B show a flow chart of an instant type lottery ticket selling service

4   according to the seventh embodiment of the present invention;

5   FIG. 18 is a flow chart of a winnings payment service of an instant type lottery ticket sold

6   according to the instant type lottery ticket selling service as shown in FIGs. 17A and 17B;

7   FIGs. 19A and 19B show a flow chart of an instant type lottery ticket selling service

8   according to the eighth embodiment of the present invention;

9   FIG. 20 is a flow chart of a winnings payment service of an instant type lottery ticket sold

10   according to the instant type lottery ticket selling service as shown in FIGs. 19A and 19B.

DETAILED DESCRIPTION OF THE INVENTION

11

12   Hereinafter, described in detail will be a lottery service system and a lottery service method

13   utilizing an integrated circuit card according to the present invention, with reference to FIGs. 1 to

14   20.

15   Referring to FIG. 1, a lottery service system of the present invention includes an IC card 10

16   in which information of remaining funds to be expended in using a lottery service, various

17   information for identifying the purchaser of the lottery ticket, and the like, are recorded, a terminal

18   20 for receiving the IC card 10 and providing a user interface according to the lottery service, and

19   a service server 30 communicating with the terminal 20, providing the lottery service, and verifying

20   the user's IC card 10.

1   In this case, the terminal 20 and the service server 30 are communication appliances

2   connected to each other through a communication network for transmitting data between

3   interconnected elements, in order to achieve a common object through the data communication.

4   Further, as the terminal 20, which may be arranged for a general user, the present invention

5   may employ a public phone capable of providing a communication service for an IC card user.

6   First, the IC card 10 includes a control section 11, a memory section 12, a cipher algorithm

7   section 13, and an input/output section 14. The control section 11 generally controls all sections of

8   the IC card 10 according to a predetermined control program.

9   In the memory section 12 are stored various information including card information in

10   relation to the IC card 10, fund information to be expended in utilizing the communication service,

11   lottery ticket information according to the purchase of the lottery ticket, and the like.

12   Referring to FIG. 2, the memory section 12 has interior sectors including a manufacturer

13   sector, an issuer sector, an issuer preparation sector, a fund information sector, a fund information

14   backup sector, a card verification key sector, a card secret key sector, and a user sector.

15   The manufacturer sector stores information about a manufacturer of the chip, an order code,

16   chip manufacturer information, and the like.

17   The issuer sector stores information about the issuer who issued the IC card 10, such as a

18   country code, information about the type of the card, and the like.

19   The issuer preparation sector selectively stores information other than the basic information

20   fixedly stored in the manufacturer sector and the issuer sector. For example, the issuer preparation

21   sector selectively stores a winning identification code according to an embodiment of an instant type

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1   lottery service, which will be described later in this specification. The term intrinsic lottery ticket

2   information will here mean information that shows that the IC card 10 may be used to purchase a

3   lottery ticket, and by which each card is endowed with an intrinsic number.

4   The fund information sector is a common sector in which information regarding expendable

5   fund remaining in the IC card 10 is stored; this information includes fund information for the

6   communication service and for the lottery service.

7   The fund information backup sector is a sector in which the fund information stored in the

8   fund information sector is backed up, and is utilized to recover a memory of the IC card 10, e.g.,

9   when it is damaged.

10   The card verification key sector stores a card verification key generated by a card-issuing

11   device so as to confirm if the card is being used normally, and the card verification key sector is used

12   to verify the card when the lottery ticket is sold or winning of the lottery is confirmed.

13   The card secret key sector stores a card secret key generated by the card-issuing device with

14   reference to the manufacturer information and the issuer information, and is used to verify the card

15   when confirming the winning of the lottery.

16   The user sector stores lottery ticket information on lottery tickets purchased by means of the

17   IC card 10, including the type of lottery ticket, a lottery ticket dedicated fund, lottery ticket deposits,

18   personal information of the purchaser, details of the purchase of the lottery ticket, an intrinsic

19   identification code of the purchase of the lottery ticket, a secret purchase code of the lottery ticket,

20   and an identification code of the winning of the lottery ticket.

21   The cipher algorithm section 13 of the IC card stores a verification cipher value algorithm

1 for generating a cipher value for information stored in the memory section 12, that is, for generating

2 a cipher value for the card verification key stored in the card verification key sector or for generating

3 a cipher value for the card secret key stored in the card secret key sector, so as to verify the card

4 when the lottery ticket is sold or the winnings of the lottery are paid.

5 The input/output section 14 is a section for transmitting and receiving data between the IC

6 card 10 and the terminal 20. The input/output section 14 transmits various information stored in the

7 memory section 12 and the cipher value generated in the cipher algorithm section 13 to the terminal

8 20 and receives various information in relation to the purchase of the lottery ticket from the terminal

9 20.

10 The terminal 20 includes a control section 21, an input section 22, a display section 23, a card

11 reader section 24, a card verification section 25, a memory section 26, a cipher algorithm section 27,

12 a communication section 28, and a printer section 29, as seen in FIG. 1.

13 The control section 21, in which the IC card 10 is inserted, generally controls the sections

14 of the terminal 20 according to a predetermined program.

15 The input section 22 receives various information including a choice between a general

16 telephone function and a lottery service function and a choice between the types of the lottery, which

17 is necessary for the user of the IC card 10, and then transmits the inputted information to the control

18 section 21. Input section 22 may employ any of a number of kinds of input devices, such as a touch-

19 screen or a keyboard.

20 The display section 23 displays the operation state of the terminal 20 and other appropriate

21 information. A liquid crystal display panel or like display devices may be employed as the display

1   section 23.

2   The card reader section 24 reads various information stored in the memory section 12 of the

3   IC card 10 inserted in a card insertion port (not shown), and records various information in the

4   memory section 12 of the IC card 10 according to the control by the control section 21.

5   The card verification section 25 determines if the IC card 10 read by the card reader section

6   24 is usable, and confirms the genuineness of the IC card 10 by comparing the cipher value

7   generated in the cipher algorithm section 13 of the IC card 10 using the card verification key with

8   the cipher value generated in the cipher algorithm section 27 of the terminal 20.

9   The memory section 26 stores various program data, which will be executed by the control

10   section 21. Especially, the memory section 26 stores various display data, which will be displayed

11   on the display section 23 according to the communication service or the lottery service by preferred

12   embodiments of the present invention.

13   The cipher algorithm section 27 stores the verification cipher value algorism for generating

14   a cipher value using the card verification key of the IC card 10.

15   The communication section 28 interconnects the terminal 20 and the service server 30

16   through a network, that is, the communication section 28 transmits information inputted directly by

17   the user of the IC card 10 from the terminal 20 and various information of the IC card 10 read by the

18   card reader section 24 to the service server 30, and receives information regarding the sold lottery

19   ticket from the service server 30.

20   The printer section 29 outputs and prints the details of the lottery ticket purchased by the user

21   of the IC card 10 according to the control of the control section 21.

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1   In the meantime, the service server 30 communicates with the terminal 20 so as to provide

2   the communication service and the lottery service for the user, and includes a control section 31, a

3   memory section 32, a communication section 33, a lottery ticket sale information storage section 34,

4   a lottery ticket information generation section 35, a cipher algorithm section 36, and a lottery ticket

5   purchaser verification section 37.

6   The control section 31 generally controls the sections of the service server 30 and provides

7   the communication service and the lottery service for the user of the IC card 10.

8   The memory section 32 stores various programs and data to be executed by the control

9   section 31.

10   The communication section 33 interconnects the terminal 20 and the service server 30

11   through the network, that is, the service server 30 receives IC card information or information

12   inputted by the user according to the service selected by the user from the terminal 20, and transmits

13   the executed result of the corresponding service to the terminal 20. In other words, the service server

14   30 receives a telephone number inputted by the user and forms a communication channel when the

15   user selects the communication service, while receiving and transmitting information in relation to

16   the sale and the winning of the lottery ticket when the user selects the lottery service.

17   The lottery ticket sale information storage section 34 stores the information of the sold lottery

18   ticket from the terminal 20 as a database, and utilizes the information in verifying the card when the

19   winnings of the lottery are paid.

20   The lottery ticket information generation section 35 generates, e.g., the lottery ticket number

21   when the instant lottery service is chosen in the terminal 20, and generates a winning identification

1   code when the lottery ticket number wins the lottery, according to embodiments of the present

2   invention that will be described later in this specification. Further, the lottery ticket information

3   generation section 35 generates an intrinsic purchase identification code when the lottery ticket is

4   sold. The generated lottery ticket number, the winning identification code, and the intrinsic purchase

5   identification code are stored in the lottery ticket sale information storage section 34.

6   The cipher algorithm section 36 generates a cipher value for the information received in the

7   terminal 20 in order to verify the IC card 10 when the lottery ticket is sold or the winnings are paid.

8   The lottery ticket purchaser verification section 37 confirms if the IC card when the winnings

9   are paid is the same IC card used when the lottery ticket was sold by comparing the cipher value

10 generated in the cipher algorithm section 36 when the winnings are paid with the cipher value stored

11 in the lottery ticket sale information storage section 34 after being generated when the lottery ticket

12 was sold.

13 Hereinafter, a method for selling the lottery ticket and paying the winnings by means of the

14 IC card 10 by the lottery service system having the construction as described above will be described

15 in detail with reference to FIGs. 3 to 20.

16 The lottery service according to the present invention may be divided into a lotto type lottery

17 service and an instant type lottery service. In the lotto type lottery service, a user purchases at least

18 one lottery ticket and selects the lottery ticket number, and the winning number is decided by lot in

19 the service server 30 on a predetermined date. In the instant type lottery service, the service server

20 30 instantly generates a lottery ticket number when a user purchases the lottery ticket, and the user

21 can instantly confirm if the generated number is the winning number.

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1   In the present specification, a detailed description about the communication service according

2   to the invention will be omitted since it is the same as in a general pay phone for a user to use the

3   communication service by means of the IC card 10 in the terminal 20, and only the lottery service,

4   which can be used at the expense of the lottery ticket dedicated fund among the fund information

5   stored in the IC card 10, will be described in detail.

6   <LOTTO TYPE LOTTERY SERVICE>

7   FIGs. 3A to 10 are flow charts for showing various lotto type lottery services according to

8   several embodiments of the present invention.

9   The system for providing the lotto type lottery services provides a lottery ticket selling

10   service, in which if a lottery ticket is a winning ticket is confirmed, and a winnings payment service,

11   in which the winnings are paid.

12   The lottery ticket selling service includes a card verification step in which the genuineness

13   of the IC card 10 is examined, a lotto type lottery ticket selling step in which lottery ticket is sold

14   to a user of the IC card 10, and a winnings-payment-requirement-setting step in which requirements

15   for paying winnings when the lottery ticket is a winning ticket are set.

16   In a lottery ticket selling service according to a first embodiment of the present invention as

17   shown in FIGs. 3A to 3C, the user of the IC card 10 inserts the IC card 10 into a card insertion port

18   provided at the terminal 20, in order to buy a lottery ticket. Then, the control section 21 of the

19   terminal 20 performs a card verification step (S100) in which it is confirmed if the inserted IC card

20   10 is a normal and usable card (see FIG. 3A). In detailed description, the control section 21 of the

1   terminal 20 confirms if the IC card 10 is inserted in the card insertion port (S101), and verifies the

2   inserted IC card 10 (S102), so as to confirm if the IC card 10 is usable and normal (S103).

3   That is, the control section 11 of the IC card 10 generates a cipher value for the card

4   verification key stored in the card verification key sector of the memory section 12 by the cipher

5   algorithm section 13 of the IC card 10, and transmits it to the terminal 20. Then, the card reader

6   section 24 of the terminal 20 transmits the cipher value generated in the IC card 10 to the card

7   verification section 25, and determines the genuineness of the IC card 10 by comparing the cipher

8   value generated in the cipher algorithm section 27 for the stored card verification key with the cipher

9   value generated in the IC card 10 to determine if they are the same.

10   As a result of the comparison, when the IC card 10 inserted in the terminal 20 is a usable

11   normal card, the control section 21 of the terminal 20 controls the card reader section 24 to read the

12   fund information stored in the fund information sector and the user sector of the memory section 12

13   of the IC card 10, and displays the balance in the card on the display section 23 (S104).

14   In this case, the entire fund information, by which the communication service and the lottery

15   service can be used, is stored in the fund information sector of the IC card 10, and information on

16   the lottery ticket dedicated fund, that is, a fund to be expended in purchasing a lottery ticket, is stored

17   in the user sector. The values of both the lottery ticket dedicated fund and the entire fund may be

18   displayed on the display section 23.

19   When the IC card 10 inserted in the terminal 20 is determined in the comparison to not be

20   a usable normal card, the control section 21 of the terminal 20 displays an error message on the

21   display section 23 (S105), and stops the service of selling the lottery ticket.

1   When the inserted IC card 10 has been verified to be a usable normal card, the lotto type

2   lottery ticket selling step (S110), in which the lottery ticket is sold to the user of the IC card 10, is

3   subsequently carried out, as shown in FIG. 3B.

4   The control section 21 of the terminal 20 displays a main menu, from which various kinds

5   of service items provided by the lottery service can be selected, on the display section 23 (S111). In

6   this case, the displayed service items include a choice between the kinds of the lottery ticket, the

7   lotto type lottery ticket and the instant type lottery ticket, and a selling of the lottery ticket, a

8   verification of the winning, a payment of the winnings, and the like in relation to the chosen kind

9   of the lottery ticket after the choice.

10   When the user chooses the lotto-type lottery ticket selling service from the displayed service

11   items by means of the input section 22 (S112), the control section 21 displays a message on the

12   display section 23 requiring the user to input the user's user identification code(S113). Here, the

13   user identification number may be an individual identification number such as a social security

14   number or residence code, or may be a personal identification number which is selected or assigned

15   to the user.

16   When the user's user identification code has been inputted by means of the input section 22,

17   the control section 21 transmits the inputted user identification code through the communication

18   section 28 to the service server 30 (S114). When the user identification code has been received

19   through the communication section 33 from the terminal 20, the control section 31 of the service

20   server 30 checks the inputted user identification code (S115), so as to verify that the user of the IC

21   card 10, who wants to buy the lottery ticket by means of the terminal 20, is an adult (S116).

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1   When the user of the IC card 10 is verified to be an adult, the lottery ticket sale information

2   storage section 34 stores the inputted user identification code as a database value according to the

3   control of the control section 31 (S117), and transmits the verified result of the user identification

4   code to the terminal 20.

5   When the user of the IC card 10 is not verified to be an adult according to the result from the

6   user identification code received from the service server 30, the control section 21 of the terminal

7   20 displays a message indicating refusal to sell the lottery ticket because the user of the IC card 10

8   is not an adult, and then returns the process to the step S111, so as to display the main menu and

9   guide the user to input the lottery ticket purchase information if the user is an adult (S118).

10 The user inputs his and her personal information through the input section 22 according to

11 the purchase information input guide displayed on the display section 23 (S119), and inputs details

12 of the purchase (S120).

13 In this case, the personal information may include a name, an address, a telephone number,

14 and an account number of the buyer, and the like, and the details of the purchase may include the

15 lottery ticket number to buy, the ticket number of each lottery ticket, date of sale, the time of the

16 drawing of the lottery ticket, and the like.

17 When the user's personal information and the details of the purchase have been completely

18 inputted, the control section 21 of the terminal 20 decides if the user can purchase the lottery ticket

19 by comparing the lottery ticket dedicated fund stored in the IC card 10 with the price for the tickets

20 the user ordered (S121).

21 As a result of the decision, when the balance of the lottery ticket dedicated fund stored in the

1   IC card 10 is smaller than the price for the tickets the user ordered, the control section 21 of the

2   terminal 20 displays an error message indicating a shortage of the balance on the display section 23

3   (S122), and then returns the process to the step S111 to display the main menu.

4   When the balance of the lottery ticket dedicated fund stored in the IC card 10 is equal to or

5   more than the price for the tickets the user ordered as a result of the decision, the control section 21

6   of the terminal 20 controls the card reader section 24 to collect the price of the sold lottery ticket by

7   balancing the price from the lottery ticket dedicated fund stored in the user sector of the memory

8   section 12 of the IC card 10. That is, the value stored on the card is changed to reflect a new balance

9   lottery ticket dedicated fund where the price of the lottery ticket has been debited.

10 When the lotto type lottery ticket selling step (S110) has been completed in the process as

11 described above, the winnings-payment-requirement-setting step (S130), in which requirements for

12 paying the winnings when the sold lottery ticket is a winning ticket are set, is executed, as shown

13 in FIG. 3C.

14 In detailed description, when the price of the sold lottery ticket has been collected, the control

15 section 21 of the terminal 20 transmits the personal information and the details of the purchase

16 inputted in the lotto type lottery ticket selling step (S110) through the communication section 28 to

17 the service server 30 (S131).

18 Meanwhile, the control section 31 of the service server 30 stores the personal information

19 and the details of the purchase received through the communication section 33 from the terminal 20

20 in the lottery ticket sale information storage section 34 in a database (S132).

21 Thereafter, the lottery ticket information generation section 35 generates an intrinsic purchase

1 identification code according to the control of the control section 31 (S133). In this case, the intrinsic

2 purchase identification code is an identification code for verifying the user when the winnings of the

3 lottery ticket is paid to the user, and is generated whenever the lottery ticket is sold.

4 The control section 31 of the service server 30 stores the intrinsic purchase identification

5 code in the lottery ticket sale information storage section 34 as a database, and transmits the intrinsic

6 purchase identification code through the communication section 33 to the terminal 20 (S134).

7 When the intrinsic purchase identification code is received from the service server 30 through

8 the communication section 28, the control section 21 of the terminal 20 controls the card reader

9 section 24 to store the personal information and the details of the purchase, both inputted by the user,

10 and the intrinsic purchase identification code in the user sector of the memory section 12 of the IC

11 card 10 (S135).

12 When the lottery ticket information sold to a user of the IC card 10 is stored in the IC card

13 10, the user of the IC card 10 can selectively print the details of the purchase by means of the printer

14 section 29 of the terminal 20, so as to easily confirm the details of the purchase. That is, when the

15 lottery ticket information about a lottery ticket sold to a user of the IC card 10 is stored in the IC card

16 10, the control section 21 of the terminal 20 displays a message on the display section 23 inquiring

17 if the user want to print the details of the purchase (S136).

18 When the user of the IC card 10 selects, through the input section 22, printing of the details

19 of the purchase, the control section 21 outputs to print the details of the purchase of the lottery ticket

20 sold to the user through the printer section 29 (S137), and completes the lottery ticket selling service

21 (S138), so that the step S130 is ended.

1   In this case, when the user of the IC card 10 does not want to print the details of the purchase

2   of the lottery ticket, the control section 21 stores the lottery ticket information in the IC card 10, and

3   then completes the lottery ticket selling service (S138).

4   When the lottery ticket selling service has been executed according to a first embodiment of

5   the present invention as described above, the lottery ticket information including the personal

6   information of the purchaser, the details of the purchase, and the intrinsic purchase identification

7   code is stored both in the user sector of the memory section 12 of the IC card 10 and the lottery ticket

8   sale information storage section 34 of the service server 30.

9   Hereinafter, a lottery ticket selling service according to a second embodiment of the present

10   invention will be described with reference to FIG. 7. For this embodiment, a detailed description

11   about a card verification step (S300), in which an availability of the IC card 10 is examined, and a

12   lotto type lottery ticket selling step (S310), in which lottery ticket is sold to the verified user of the

13   IC card 10, will be omitted, since they are the same as the card verification step (S100) and the lotto

14   type lottery ticket selling step (S110) in the first embodiment of the present invention as shown in

15   FIGs. 3A to 3C.

16   After the card verification step (S300) and the lotto type lottery ticket selling step (S310) are

17   carried out, a winnings-payment-requirement-setting step (S320) is carried out, which will now be

18   described in detail. First, the control section 21 of the terminal 20 controls the card reader section

19   24 to read card information stored in the memory section 12 of the IC card 10 (S321). In this case,

20   the card information is information generated by collecting predetermined data from the information

21   about the manufacturer and the issuer of the IC card 10, and is selectively stored in the issuer

1   preparation sector of the memory section 12 of the IC card 10 when the card is issued.

2   When the card information stored in the IC card 10 has been read, the control section 21 of

3   the terminal 20 transmits the personal information of the user and the details of the purchase, both

4   inputted in the lotto type lottery ticket selling step (S310), and the card information through the

5   communication section 28 to the service server 30 (S322). Meanwhile, the control section 31 of the

6   service server 30 stores the personal information and the details of the purchase, which are received

7   through the communication section 33, in the lottery ticket sale information storage section 34 as

8   databases (S323), the cipher algorithm section 36 generates cipher value for the card information

9   received in the terminal 20 according to the control of the control section 31 (S324), and the lottery

10 ticket sale information storage section 34 stores the generated cipher value as a database value

11 (S325).

12 When the cipher value for the card information has been stored, the lottery ticket information

13 generation section 35 generates an intrinsic purchase identification code (S326) and the control

14 section 31 stores the intrinsic purchase identification code generated in the lottery ticket information

15 generation section 35 in the lottery ticket sale information storage section 34 as a database value, and

16 transmits this information through the communication section 33 to the terminal 20 (S327).

17 When the intrinsic purchase identification code has been received through the communication

18 section 28 from the service server 30, the control section 21 of the terminal 20 controls the card

19 reader section 24 to store the personal information and the details of the purchase, both inputted by

20 the user, and the intrinsic purchase identification code in the user sector of the memory section 12

21 of the IC card 10 (S328).

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1   When the lottery ticket information including the personal information, the details of the

2   purchase, and the intrinsic purchase identification code has been stored in the IC card 10, the control

3   section 21 of the terminal 20 displays a message on the display section 23 inquiring if the user want

4   to print the details of the purchase (S329). When the user of the IC card 10 selects, through the input

5   section 22, printing of the details of the purchase, the control section 21 prints the details of the

6   lottery ticket sold to the user by means of the printer section 29 (S330), and then completes the

7   lottery ticket selling service (S331), so that the process is ended.

8   In the lottery ticket selling service according to the second embodiment of the present

9   invention as described above, not only the lottery ticket information including the personal

10   information of the user, the details of the purchase, and the intrinsic purchase identification code are

11   stored both in the user sector of the memory section 12 of the IC card 10 and in the lottery ticket sale

12   information storage section 34 of the service server 30, but also the cipher value for the card

13   information of the IC card 10 generated in the service server 30 is stored in the lottery ticket sale

14   information storage section 34 of the service server 30.

15   A lottery ticket selling service according to a third embodiment of the present invention will

16   now be described with reference to FIG. 9. For this embodiment, a detailed description of the card

17   verification step (S400) and a lotto type lottery ticket selling step (S410) will be omitted, since they

18   are the same as those in the first embodiment of the present invention.

19   After the card verification step (S400) and the lotto type lottery ticket selling step (S410) are

20   carried out, a winnings-payment-requirement-setting step (S420) is carried out, which will now be

21   described in detail.

1   The control section 21 of the terminal 20 transmits the personal information and the details

2   of the purchase inputted in the lotto type lottery ticket selling step (S410) through the

3   communication section 28 to the service server 30 (S421). After the personal information and the

4   details of the purchase are transmitted to the service server 30, the control section 21 of the terminal

5   20 transmits an order requiring a transmission of a cipher value for verifying the IC card through the

6   card reader section 24 to the IC card 10.

7   The control section 11 of the IC card 10 controls the cipher algorithm section 13 to generate

8   cipher values for the card information and the card secret key stored in the memory section 12, and

9   transmits the generated cipher values to the terminal 20. When the cipher values generated in the

10   IC card 10 have been read by means of the card reader section 24 (S422), the terminal 20 transmits

11   the read cipher values through the communication section 28 to the service server 30 (S423).

12   Meanwhile, the control section 31 of the service server 30 stores the personal information

13   and the details of the purchase, which are received through the communication section 33 from the

14   terminal 20 in the step S421, in the lottery ticket sale information storage section 34 as database

15   values (S424).

16   Further, the control section 31 of the service server 30 stores the cipher values, which are

17   received through the communication section 33 from the terminal 20 in the step S423, in the lottery

18   ticket sale information storage section 34 as databases (S425), and controls the lottery ticket

19   information generation section 35 to generate an intrinsic purchase identification code (S426). The

20   control section 31 of the service server 30 stores the intrinsic purchase identification code, which is

21   generated in the lottery ticket information generation section 35, in the lottery ticket sale information

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1   storage section 34 as a database value, and simultaneously transmits it through the communication

2   section 33 to the terminal 20 (S427).

3   When the intrinsic purchase identification code has been received through the communication

4   section 28 from the service server 30, the control section 21 of the terminal 20 controls the card

5   reader section 24 to store the personal information and the details of the purchase, respectively

6   inputted by the user, and the intrinsic purchase identification code in the user sector of the memory

7   section 12 of the IC card 10 (S428). When the lottery ticket information including the personal

8   information, the details of the purchase, and the intrinsic purchase identification code has been stored

9   in the IC card 10, the control section 21 of the terminal 20 displays a message on the display section

10   23 inquiring if the user want to print the details of the purchase (S429).

11   When the user of the IC card 10 selects, through the input section 22, printing the details of

12   the purchase, the control section 21 prints the details of the lottery ticket sold to the user by means

13   of the printer section 29 (S430), and then completes the lottery ticket selling service (S431) so that

14   the process is ended. On the other hand, when the user does not want to print the details of the

15   purchase, the control section 21 instantly completes the lottery ticket selling service (S431) without

16   through the step of printing the details of the purchase, and the process is ended.

17   In the lottery ticket selling service according to the third embodiment of the present invention

18   as described above, not only the lottery ticket information including the personal information of the

19   user, the details of the purchase, and the intrinsic purchase identification code are stored both in the

20   user sector of the memory section 12 of the IC card 10 and in the lottery ticket sale information

21   storage section 34 of the service server 30, but also the cipher values for the card information and

1   the card secret key generated in the IC card 10 generated in the service server 30 are stored in the

2   lottery ticket sale information storage section 34 of the service server 30.

3   The information stored in the IC card 10 and the service server 30 while the lottery ticket

4   selling service according to various embodiments of the present invention as described above is used

5   in verifying the user's IC card when a winning reference service and a winnings payment service are

6   carried out later.

7   Hereinafter, the winning reference service of the lotto type lottery ticket will be described

8   with reference to FIG. 4, which is a flow chart of the winning reference service by the lottery service

9   system. The winning reference service is employed in all of the cases where a user has purchased

10   a lottery ticket according to the lottery ticket selling services provided by the first to third

11   embodiments of the present invention.

12   In the winning reference service of the invention, there are a method of checking if the lottery

13   ticket is a winning ticket by means of the IC card 10 used to buy the lottery ticket and a method of

14   directly checking the number of the purchased lottery ticket in the web site of the service server 30

15   if they win.

16   First, the method of directly checking the number of the purchased lottery ticket in the web

17   site of the service server 30 will be described. When the user inputs the web site of the service server

18   30 through the input section 22 of the terminal 20 (S150), the control section 21 of the terminal 20

19   displays a message requiring the user to input the number of the purchased lottery ticket on the

20   display section 23 (S151).

21   When the user has inputted the number of the purchased lottery ticket through the input

1   section 22, the control section 21 of the terminal 20 transmits the inputted number of the purchased

2   lottery ticket to the service server 30, and then the control section 31 of the service server 30 checks

3   the transmitted lottery ticket number to determine if the lottery ticket is a winning ticket, and

4   transmits the checked result to the terminal 20. The control section 21 of the terminal 20 displays

5   the checked result received from the service server 30 on the display section 23 (S152), and

6   completes the winning reference service (S153), so that the process is ended.

7   Next, in the method of checking the winning of the lottery ticket by means of the IC card 10

8   used to buy the lottery ticket, when the user inserts the the IC card 10 into the terminal 20, the

9   control section 21 of the terminal 20 carries out the card verification step (S160), in which the user's

10   IC card 10 is verified. In this case, a detailed description about the card verification step (S160) will

11   be omitted, since it is the same as the card verification step (S100) in the lottery ticket selling service

12   as shown in FIGs. 3A to 3C.

13   When the user's IC card 10 is confirmed as a usable card as a result of the verification of the

14   card, the control section 21 of the terminal 20 displays the main menu on the display section 23

15   (S161), and then the user selects the lotto type lottery ticket winning reference service through the

16   input section 22 (S162). Then, the control section 21 requires the user to input the user's user

17   identification code through the display section 23 (S163). When the user's user identification code

18   is inputted through the input section 22, the control section 21 controls the card reader section 24

19   to read the intrinsic purchase identification code stored in the user sector of the memory section 12

20   of the IC card 10 (S164).

21   Next, the control section 21 transmits the user identification code inputted through the input

1   section 22 and the intrinsic purchase identification code read in the card reader section 24 to the

2   service server 30 through the communication section 28 (S165). In the meantime, the control section

3   31 of the service server 30 searches for the user identification code, received through the

4   communication section 33 from the terminal 20, in the lottery ticket information stored in the lottery

5   ticket sale information storage section 34 as a database (S166), so as to confirm if there is the

6   inputted user identification code (S167).

7   When the user identification code is confirmed to exist in the lottery ticket sale information

8   storage section 34, the control section 31 confirms the lottery ticket information stored in the lottery

9   ticket sale information storage section 34 by means of the received intrinsic purchase identification

10 code, so as to refer if the lottery ticket sold to the user is a winning ticket, and then transmits the

11 checked result to the terminal 20 (S168).

12 The control section 21 of the terminal 20 displays a predetermined message on the display

13 section 23 according to the checked result received from the service server 30. That is, when the user

14 identification code inputted through the input section 22 by the user does not exist in the lottery

15 ticket sale information storage section 34 of the service server 30, the control section 21 of the

16 terminal 20 displays a message on the display section 23 indicating refusal to sell the lottery ticket

17 (S169). On the other hand, when the user identification code inputted through the input section 22

18 by the user does exist, the control section 21 of the terminal 20 displays on the display section 23

19 the result obtained by checking the winning by means of the intrinsic purchase identification

20 code(S170), and completes the winning reference service (S153) so that the process is ended.

21 As described above, the user, who has purchased the lottery ticket by means of the IC card

10, checks if the lottery ticket is a winning ticket by means of the user identification code and the

intrinsic purchase identification code stored in the IC card 10.

Next, when the winning has been confirmed in the previous winning reference service stage,

the purchaser of the lottery ticket can utilize a winnings payment service, in which the winnings are

paid to the winner, that is, the purchaser. In this case, the winnings of the lottery ticket are classified

into large winnings and small winnings, and the small winnings payment service may have a simpler

confirmation process in comparison with the large winnings payment service. Categorization as large

winnings may follow a predetermined criterion; e.g., large winnings may mean that the lottery ticket

has won a first prize or second prize or a jackpot.

At first, in the small winnings payment service of the lotto type lottery ticket as shown in

FIG. 5, when the winner who wants the winnings to be paid has inserted the IC card 10 used in

purchasing the lottery ticket into the terminal 20, a card verification step (S200) is carried out to

verify the user's IC card 10. This step will not be described in detail since the card verification step

(S200) is the same as the card verification step (S100) in the lottery ticket selling service as shown

in FIGs. 3A to 3C.

When the user's IC card 10 is confirmed as a usable card in the card verification step (S200),

the control section 21 of the terminal 20 displays the main menu on the display section 23 (S201)

and then the user selects the lotto type lottery ticket small winnings payment service through the

input section 22 (S202). Then, the control section 21 displays a message on the display section 23

requiring the user to input the user's user identification code (S203), and transmits the user's user

identification code, which is inputted through the input section 22, to the service server 30 through

1   the communication section 28 (S204).

2   In the meantime, the control section 31 of the service server 30 searches for the user

3   identification code, which is received from the terminal 20, from the lottery ticket information stored

4   in the lottery ticket sale information storage section 34 (S205), so as to confirm if the received user

5   identification code (S206) is there.

6   When the user identification code is confirmed to be there, the control section 31 confirms

7   the lottery ticket information stored in the lottery ticket sale information storage section 34 by means

8   of the user identification code, so as to refer if the lottery ticket sold to the user is a winning ticket,

9   and then transmits the checked result to the terminal 20 (S207).

10   The control section 21 of the terminal 20 displays a predetermined message on the display

11   section 23 according to the checked result received from the service server 30. That is, when the

12   user identification code inputted through the input section 22 by the user does not exist in the lottery

13   ticket sale information storage section 34 of the service server 30, the control section 21 of the

14   terminal 20 displays a message refusing to sell the lottery ticket on the display section 23 (S208).

15   On the other hand, when the user identification code inputted through the input section 22

16   by the user exists, the control section 21 of the terminal 20 displays the checked result, obtained by

17   checking the winning by means of the user identification code, and the winnings payment

18   information, such as the account number, contained in the personal information inputted by the user

19   when the lottery ticket is sold, on the display section 23 (S209). Then, the winnings are paid

20   according to the winnings payment information (S210), and the winning reference service is

21   completed (S211). Then, the process is ended.

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In this case, the control section 21 of the terminal 20 transmits the winnings payment information to the service server 30 when the winnings have been paid, and the control section 31 of the service server 30 stores the winnings payment information in the lottery ticket sale information storage section 34, so as to update the lottery ticket information (S212). This step is arranged in order to prevent the winnings from being doubly paid.

As described above, when the winnings are a small amount of money, that is, in the case of the small winnings, the winning is checked by means of the user's user identification code so that the winnings are paid. However, when the winnings are a large amount of money, that is, in the case of the large winnings, there are several ways of confirming the winning or the winner according to embodiments of the present invention.

In more detailed description, in the case where the lottery ticket sold according to the first embodiment of the present invention wins a large winnings, the winnings are paid in the way as shown in FIG. 6. First, the control section 21 of the terminal 20 carries out a card verification step (S250), and then displays the main menu on the display section 23 when the IC card 10 has been confirmed as a usable normal card (S251).

The user selects the lotto type lottery ticket large winnings payment service through the input section 22 (S252), and the control section 21 displays a message requiring the user to input the user's user identification code on the display section 23 (S253). When the user has inputted the user's user identification code through the input section 22, the control section 21 controls the card reader section 24 to read the intrinsic purchase identification code stored in the IC card 10, and transmits the inputted user's user identification code and the read intrinsic purchase identification code to the

1   service server 30 through the communication section 28 (S254).

2   In the meantime, the control section 31 of the service server 30 searches for the user

3   identification code which is received through the communication section 33 from the terminal 20,

4   from the lottery ticket information stored in the lottery ticket sale information storage section 34

5   (S255), so as to confirm if the received user identification code exists there (S256).

6   When the user identification code is confirmed to exist, the control section 31 confirms the

7   lottery ticket information stored in the lottery ticket sale information storage section 34 by means

8   of the intrinsic purchase code received from the terminal 20 so as to check if the lottery ticket sold

9   to the user is a winning ticket, and then transmits the checked result to the terminal 20 (S257).

10   The control section 21 of the terminal 20 displays a predetermined message on the display

11   section 23 according to the checked result received from the service server 30. That is, when the

12   user identification code inputted through the input section 22 by the user does not exist in the lottery

13   ticket sale information storage section 34 of the service server 30, the control section 21 of the

14   terminal 20 displays a message on the display section 23 indicating refusal to sell the lottery ticket

15   (S258).

16   On the other hand, when the user identification code inputted through the input section 22

17   by the user exists, the control section 21 of the terminal 20 displays on the display section 23 the

18   checked result obtained by checking the winning by means of the user identification code and the

19   winnings payment information contained in the personal information inputted by the user when the

20   lottery ticket is sold (S259). Then, the winnings are paid according to the winnings payment

21   information (S260), and the winning reference service is completed (S261). Then, the process is

1 ended.

2 In this case, the control section 21 of the terminal 20 transmits the winnings payment

3 information to the service server 30 when the winnings have been paid and the control section 31

4 of the service server 30 stores the winnings payment information in the lottery ticket sale

5 information storage section 34 so as to update the lottery ticket information (S262). Accordingly,

6 the winnings are paid only when not only the user identification codes inputted by the user

7 respectively when the lottery ticket is sold and when the winnings are paid are the same, but also the

8 intrinsic purchase code stored in the IC card 10, is the same as the already stored intrinsic purchase

9 code.

10 In the meantime, in the case where the lottery ticket sold according to the second

11 embodiment of the present invention wins a large winnings, the winnings are paid in the way as

12 shown in FIG. 8. First, the control section 21 of the terminal 20 carries out a card verification step

13 (S350) in which it is confirmed that the card is usable, and the control section 21 then displays the

14 main menu on the display section 23 (S351).

15 The user selects the lotto type lottery ticket large winnings payment service from the main

16 menu by means of the input section 22 (S352), and the control section 21 displays a message on the

17 display section 23 which requires the user to input the user's user identification code (S353). When

18 the user has inputted the user identification code through the input section 22, the control section 21

19 controls the card reader section 24 to read the card information stored in the memory section 12

20 when the IC card 10 is issued (S354), and transmits the inputted user identification code and the read

21 card information to the service server 30 through the communication section 28 (S355).

1   In the meantime, the control section 31 of the service server 30 searches for the user

2   identification code which is received through the communication section 33 from the terminal 20,

3   from the lottery ticket information stored in the lottery ticket sale information storage section 34

4   (S356), so as to confirm if the received user identification code exists there (S357). When the user

5   identification code is confirmed to exist, the cipher algorithm section 36 generates a cipher value for

6   the card information received from the terminal 20, according to the control of the control section

7   31 (S358). When the user identification code does not exist, the nonexistence of the user

8   identification code is reported to the terminal 20.

9   The lottery ticket purchaser verification section 37 compares the cipher value generated in

10   the step S358 with the cipher value contained in the lottery ticket information stored in the lottery

11   ticket sale information storage section 34 (S359), so as to judge if they are the same (S360). In this

12   case, the cipher value stored in the lottery ticket sale information storage section 34 is a value

13   generated when the lottery ticket selling service is carried out according to the second embodiment

14   of the present invention as shown in FIG. 7.

15   As a result of the comparison, when the cipher value generated for the card information read

16   in the IC card 10 is equal to the cipher value already stored in the lottery ticket sale information

17   storage section 34, the IC card 10 used when the lottery ticket is sold is understood to be the same

18   as the IC card 10 used when the winnings are paid, and therefore the control section 31 confirms the

19   lottery ticket information stored in the lottery ticket sale information storage section 34, so as to

20   check if the lottery ticket sold to the user is a winning ticket, and then transmits the checked result

21   to the terminal 20 (S361).

1   The control section 21 of the terminal 20 displays a predetermined message on the display

2   section 23 according to the checked result received from the service server 30. That is, when the user

3   identification code inputted through the input section 22 by the user does not exist in the lottery

4   ticket sale information storage section 34 of the service server 30, the control section 21 of the

5   terminal 20 displays a message on the display section 23 refusing to sell the lottery ticket (S362).

6   Further, when the cipher values are determined not to be the same in the comparison in the

7   step S360 in which the cipher values are compared if they are the same in the service server 30, the

8   control section 21 of the terminal 20 displays a message informing a losing of the lottery on the

9   display section 23 (S363).

10   When the cipher values are determined to be the same in the comparison in the step S360 in

11   which the cipher values are compared in the service server 30, the control section 21 of the terminal

12   20 displays on the display section 23 the checked result obtained by checking the winning by means

13   of the user identification code and the winnings payment information inputted by the user when the

14   lottery ticket is sold (S364). Then, the winnings are paid according to the winnings payment

15   information (S365), and the winning reference service is completed (S366). Then, the process is

16   ended.

17   In this case, the control section 21 of the terminal 20 transmits the winnings payment

18   information to the service server 30 when the winnings have been paid, and the control section 31

19   of the service server 30 stores the winnings payment information in the lottery ticket sale

20   information storage section 34, so as to update the lottery ticket information (S367). Accordingly,

21   the winnings are paid only when, not only the user identification codes inputted by the user when

the lottery ticket is sold and when the winnings are paid are the same, but also the cipher value

generated for the card information stored in the IC card 10 is equal to the cipher value already stored

in the lottery ticket sale information storage section 34.

In the case where the lottery ticket sold according to the third embodiment of the present

invention wins the large winnings, the winnings are paid in the way as shown in FIG. 10. First, the

control section 21 of the terminal 20 carries out a card verification step (S450) in which if the IC

card 10 is usable is confirmed, and then displays the main menu on the display section 23 (S451).

The user selects the lotto type lottery ticket large winnings payment service from the main

menu by means of the input section 22 (S452), and the control section 21 displays a message

requiring the user to input the users user identification code on the display section 23 (S453). When

the user has inputted the user identification code through the input section 22, the control section 21

controls the card reader section 24 to read the card information stored in the memory section 12

when the IC card 10 is issued (S454), and transmits the inputted user identification code and the read

card information to the service server 30 through the communication section 28 (S455).

In the meantime, the control section 31 of the service server 30 searches for the user

identification code which is received through the communication section 33 from the terminal 20,

from the lottery ticket information stored in the lottery ticket sale information storage section 34

(S456), so as to confirm if the received user identification code exists there (S457). When the user

identification code is confirmed to exist, the cipher algorithm section 36 generates a card secret key

by means of the card information received from the terminal 20, according to the control of the

control section 31 (S458), and generates a cipher value for the generated card secret key and the card

1 information (S459).

2 Further, the lottery ticket purchaser verification section 37 compares the cipher value

3 generated in the cipher algorithm section 36 with the cipher value contained in the lottery ticket

4 information stored in the lottery ticket sale information storage section 34 (S460), so as to judge if

5 they are the same (S461). In this case, the cipher value stored in the lottery ticket sale information

6 storage section 34 is a value generated by the IC card 10 when the lottery ticket selling service is

7 carried out according to the third embodiment of the present invention as shown in FIG. 9.

8 As a result of the comparison, when the cipher value generated in the service server 30 is

9 equal to the cipher value already stored in the lottery ticket sale information storage section 34, the

10 control section 31 confirms the lottery ticket information stored in the lottery ticket sale information

11 storage section 34, so as to check if the lottery ticket sold to the user is a winning ticket, and then

12 transmits the checked result to the terminal 20 (S462).

13 The control section 21 of the terminal 20 displays a predetermined message on the display

14 section 23 according to the checked result received from the service server 30. That is, when the user

15 identification code inputted through the input section 22 by the user does not exist in the lottery

16 ticket sale information storage section 34 of the service server 30, the control section 21 of the

17 terminal 20 displays on the display section 23 a message refusing to sell the lottery ticket (S463).

18 Further, when the cipher values are not the same when compared in the step S461 in which

19 the cipher values are compared by the service server 30 if they are the same, the control section 21

20 of the terminal 20 displays a message informing of losing the lottery on the display section 23

21 (S464).

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1   When the cipher values are the same as a result of the comparison in the step S360 in which

2   the cipher values are compared if they are the same in the service server 30, the control section 21

3   of the terminal 20 displays the checked result, obtained by checking the winning by means of the

4   user identification code, and the winnings payment information, selected by the user when the lottery

5   ticket is sold, on the display section 23 (S465). Then, the winnings are paid according to the

6   winnings payment information (S466), and the winning reference service is completed (S467). Then,

7   the process is ended.

8   In this case, the control section 21 of the terminal 20 transmits the winnings payment

9   information to the service server 30 when the winnings have been paid, and the control section 31

10   of the service server 30 stores the winnings payment information in the lottery ticket sale

11   information storage section 34, so as to update the lottery ticket information (S468).

12   Therefore, the winnings are paid only when not only the user identification codes inputted

13   by the user respectively when the lottery ticket is sold and when the winnings are paid are the same,

14   but also the card information stored in the IC card 10 is equal to the cipher value generated for the

15   card secret key.

16   <INSTANT TYPE LOTTERY SERVICE>

17   FIGs. 11A to 20 are flow charts for showing various instant type lottery services according

18   to several embodiments of the present invention. The system for providing the instant type lottery

19   services provides a lottery ticket selling service in which it is confirmed if a purchased lottery ticket

20   is a winning ticket, and a winnings payment service in which the winnings are paid. The lottery

1 ticket selling service includes a card verification step in which the genuineness of the IC card 10

2 used in purchasing a lottery ticket is examined, an instant type lottery ticket selling step in which the

3 lottery ticket is sold according to a request by a user of the IC card 10, and a winnings-payment-

4 requirement-setting step in which requirements for paying winnings when the sold lottery ticket is

5 a winning ticket are set.

6 First, in a lottery ticket selling service according to a fourth embodiment of the present

7 invention as shown in FIGs. 11A and 11B, the control section 21 of the terminal 20 carries out a card

8 verification step (S500), in which the IC card 10 used in purchasing the lottery ticket is examined

9 to determine if the card is normal, and a detailed description of which will be omitted since the step

10 S500 is the same as the card verification step (S100) according to the first embodiment of the present

11 invention as shown in FIGs. 3A to 3C.

12 When the IC card 10 inserted in the terminal 20 in the card verification step (S500) is

13 confirmed as a usable normal card, the instant type lottery ticket selling step (S510), in which the

14 instant type lottery ticket is sold, is carried out. In the instant type lottery ticket selling step (S510),

15 the control section 21 of the terminal 20 displays a main menu, from which various kinds of service

16 items provided by the lottery service can be selected, on the display section 23 (S511).

17 Then, the user chooses the instant type lottery ticket selling service from the main menu by

18 means of the input section 22 (S512), the control section 21 of the terminal 20 displays a message

19 requiring the user to input the user's user identification code on the display section 23 (S513). When

20 the user's user identification code has been inputted through the input section 22, the control section

21 21 transmits the inputted user identification code through the communication section 28 to the

1 service server 30 (S514).

2 In the meantime, when the user identification code has been received through the

3 communication section 33 from the terminal 20, the control section 31 of the service server 30

4 checks the inputted user identification code (S515), so as to verify if the user of the IC card 10, who

5 want to buy the lottery ticket by means of the terminal 20, is an adult (S516).

6 When the user of the IC card 10 is verified to be an adult, the lottery ticket sale information

7 storage section 34 stores the inputted user identification code as a database, according to the control

8 of the control section 31 (S517), and transmits the verified result of the user identification code to

9 the terminal 20.

10 When the user of the IC card 10 is not verified to be an adult using the user identification

11 code received through the communication section 28, the control section 21 of the terminal 20

12 displays a message of refusal to sell the lottery ticket because the user of the IC card 10 is not an

13 adult and then returns the process to the step S511, in which the main menu is displayed again. When

14 the user of the IC card 10 is an adult, the control section 21 displays a message requiring the user

15 to select the kind of the lottery ticket he or she want to buy (S518).

16 When the user selects the instant type lottery ticket purchase displayed on the display section

17 23 by means of the input section 22, the control section 21 controls the card reader section 24 to

18 collect the price of the sold lottery ticket by balancing the price from the lottery ticket dedicated fund

19 value stored in the user sector of the memory section 12 of the IC card 10 (S519), and transmits an

20 order for the lottery ticket number to the service server 30 through the communication section 28

21 (S520).

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1   In the meantime, the control section 31 of the service server 30 controls the lottery ticket

2   information generation section 35 to generate the lottery ticket number according to the request for

3   the lottery ticket number received through the communication section 33 from the terminal 20

4   (S521), and confirms if the lottery ticket number is a winning number (S522). When the generated

5   lottery ticket number is confirmed to be the winning number, the control section 31 stores the

6   winning number in the lottery ticket sale information storage section 34 as a database value (S523)

7   and transmits the generated lottery ticket number together with the information on the winning of

8   the lottery ticket to the terminal 20 (S524). Further, when the generated lottery ticket number is not

9   the winning number as confirmed in the step S522, the control section 31 transmits the fact that the

10   lottery ticket is a losing ticket, together with the lottery ticket number, to the terminal 20 (S524).

11   The control section 21 of the terminal 20 displays on the display section 23 the lottery ticket

12   purchase result received through the communication section 28 from the service server 30, including

13   the lottery ticket number and whether the lottery ticket is a winning or losing ticket (S525).

14   After the instant type lottery ticket selling step (S510) is completed in the way as described

15   above, and when the sold instant type lottery ticket is a winning ticket, a winnings-payment-

16   requirement-setting step (S530) is carried out. In detailed description, the control section 21 of the

17   terminal 20 confirms if the lottery ticket number purchased by the user is a winning number (S531).

18   When the lottery ticket is not the winning number, the process returns to the step S511, in which the

19   main menu is displayed again. When the lottery ticket is the winning number, the control section 21

20   confirms if the winnings for the winning lottery ticket exceed a predetermined amount of money

21   (S532). In this case, the predetermined amount of money is a criterion which is in information preset

1 in the terminal 20.

2 As a result of the confirmation, when the winnings exceed the predetermined amount of

3 money, the control section 21 guides the user to select a winnings payment method through the

4 display section 23. The user selects a method of receiving the winnings by means of the input section

5 22, according to the guide of the winnings payment methods displayed on the display section 23

6 (S533).

7 When the user selects an account transfer as the method of receiving the winnings by means

8 of the input section 22 (S534) and inputs an account number (S535), the control section 21 transmits

9 the inputted account transfer information through the communication section 28 to the service server

10 30 (S536). On the other hand, when the user selects a bank payment as the method of receiving the

11 winnings by means of the input section 22 (S537), the control section 21 transmits the inputted bank

12 payment information to the service server 30 (S538).

13 Further, when the winnings do not exceed the predetermined amount of money in the step

14 S532, in which it is confirmed if the winnings for the winning lottery ticket exceed a predetermined

15 amount of money, the control section 21 controls the card reader section 24 to store the winnings in

16 the user sector of the memory section 12 of the IC card 10 as lottery ticket deposits (S539). In this

17 case, the lottery ticket deposits value stored in the IC card 10 is reported to the user when the balance

18 in the card is displayed in the card verification step.

19 Thereafter, the control section 21 of the terminal 20 completes the lottery ticket selling

20 service (S540), and then the process is ended. In the meantime, the control section 31 of the service

21 server 30 stores the winnings payment information, which is received through the communication

1   section 33 from the terminal 20, in the lottery ticket sale information storage section 34 (S541).

2   When the lottery ticket purchased by means of the lottery ticket selling service is a winning

3   ticket and the user selects a bank payment from the various winnings payment service, that is, when

4   the winner selects the bank payment in the process of selecting a method of receiving the winnings

5   in the step S533 of FIG. 11B, he or she can be paid the winnings from a designated bank according

6   to a process of the winnings payment service as shown in FIG. 12, which will now be described.

7   First, the control section 21 of the terminal 20 carries out a card verification step (S550), in which

8   it is confirmed that the IC card 10 is normal, and then displays the main menu on the display section

9   23 (S551).

10   The user selects an instant type lottery winnings payment service from the main menu

11   through the input section 22 (S552), and the control section 21 displays a message requiring the user

12   to input his or her user identification code on the display section 23 (S553). The control section 21

13   transmits the user identification code, which the user inputted through the input section 22, to the

14   service server 30 through the communication section 28 (S554).

15   In the meantime, the control section 31 of the service server 30 searches for the user

16   identification code, which is received through the communication section 33 from the terminal 20,

17   from the lottery ticket information stored as a database in the lottery ticket sale information storage

18   section 34 (S555), so as to confirm if there exists the user identification code (S556).

19   When the user identification code is confirmed to exist in the lottery ticket sale information

20   storage section 34, the control section 31 confirms the lottery ticket information stored in the lottery

21   ticket sale information storage section 34, so as to refer if the lottery ticket sold to the user is a

1   winning ticket, and then transmits a winning confirmation information to the terminal 20 (S557). In

2   this case, the winning confirmation information includes the lottery ticket number, whether this is

3   a winning or losing lottery ticket, and the winnings payment information.

4   The control section 21 of the terminal 20 displays a predetermined message on the display

5   section 23 according to the checked result received from the service server 30. That is, when the

6   user identification code inputted through the input section 22 by the user does not exist in the lottery

7   ticket sale information storage section 34 of the service server 30, the control section 21 of the

8   terminal 20 displays a message on the display section 23 refusing to sell the lottery ticket (S558).

9   On the other hand, when the user identification code inputted through the input section 22

10   by the user exists in the lottery ticket sale information storage section 34 of the service server 30,

11   the control section 21 of the terminal 20 displays on the display section 23 the checked result

12   obtained by checking if a ticket is a winning or losing ticket, and the winnings payment information

13   selected by the user when the lottery ticket is sold (S559). Then, the winnings are paid according to

14   the winnings payment information (S560), and the winning reference service is completed (S561).

15   Then, the process is ended.

16   In this case, the control section 21 of the terminal 20 transmits the winnings payment

17   information to the service server 30 when the winnings have been paid, and the control section 31

18   of the service server 30 stores the winnings payment information in the lottery ticket sale

19   information storage section 34 so as to update the lottery ticket information (S562). In this case, the

20   payment of the winnings by the way of the bank payment does not necessarily have to follow the

21   process as described above, but the winnings can be paid, for example, by utilizing a method in

1 which the service server reports the information on the winning of the lottery ticket directly to a bank

2 designated by the winner.

3 Meanwhile, in a lottery ticket selling service according to a fifth embodiment of the present

4 invention as shown in FIGs. 13A and 13B, the control section 21 of the terminal 20 carries out an

5 instant type lottery ticket selling step (S610) after carrying out a card verification step (S600) in

6 which the IC card 10 used in purchasing the lottery ticket is verified. In the instant type lottery ticket

7 selling step (S610), the control section 21 of the terminal 20 displays a main menu (S611), and then

8 the user chooses the instant type lottery ticket selling service from the main menu by means of the

9 input section 22 (S612), and inputs the user's user identification code according to the requirement

10 to input the user's user identification code displayed on the display section 23 (S613).

11 The control section 21 transmits the user identification code inputted by the user through the

12 communication section 28 to the service server 30 (S614). In the meantime, when the user

13 identification code has been received through the communication section 33 from the terminal 20,

14 the control section 31 of the service server 30 checks the inputted user identification code (S615) so

15 as to verify if the user of the IC card 10, who wants to buy the lottery ticket by means of the terminal

16 20, is an adult (S616). When the user of the IC card 10 is verified to be an adult, the lottery ticket

17 sale information storage section 34 stores the inputted user identification code as a database value

18 according to the control of the control section 31 (S617), and transmits the verified result of the user

19 identification code to the terminal 20.

20 When the user of the IC card 10 is not verified to be an adult according to the user

21 identification code received through the communication section 28, the control section 21 returns

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1   the process to the step S611, in which the main menu is displayed again, but the control section 21

2   displays a message requiring the user to select the kind of the instant type lottery ticket he or she

3   want to buy when the user of the IC card 10 is an adult (S618).

4   When the user selects the instant type lottery ticket purchase displayed on the display section

5   23 by means of the input section 22, the control section 21 controls the display section 23 to require

6   the user to input a secret code for confirming the identity of the user when the winnings are paid to

7   the user (S619), and transmits the secret code, which has been inputted through the input section 22

8   by the user, through the communication section 28 to the service server 30 (S620). After transmitting

9   the secret code to the service server 30, the control section 21 controls the card reader section 24 to

10   collect the price of the sold lottery ticket by balancing the price from the lottery ticket dedicated fund

11   stored in the user sector of the memory section 12 of the IC card 10 (S621), and transmits an order

12   requiring the lottery ticket number to the service server 30 through the communication section 28

13   (S622).

14   In the meantime, the control section 31 of the service server 30 stores the secret code

15   received through the communication section 33 from the terminal 20, in the lottery ticket sale

16   information storage section 34 as a database (S623) and controls the lottery ticket information

17   generation section 35 to generate a lottery ticket number according to the request for the lottery

18   ticket number received through the communication section 33 from the terminal 20 (S624), and

19   confirms if the lottery ticket number is a winning number (S625). When the generated lottery ticket

20   number is confirmed to be the winning number, the control section 31 stores the winning number

21   in the lottery ticket sale information storage section 34 as a database value (S626) and transmits the

1 generated lottery ticket number together with information on the winning of the lottery ticket to the

2 terminal 20 (S624). When the generated lottery ticket number is not the winning number, the control

3 section 31 transmits the fact that the lottery ticket is a losing ticket, together with the generated

4 lottery ticket number, to the terminal 20 (S628).

5 Further, when the generated lottery ticket number is the winning number, the control section

6 31 transmits this fact to the terminal 20, and then controls the cipher algorithm section 36 to generate

7 a cipher value for the secret code inputted by the user (S629) and stores the generated cipher value

8 in the lottery ticket sale information storage section 34 (S630). The control section 21 of the

9 terminal 20 displays on the display section 23 the lottery ticket purchase result received through the

10 communication section 28 from the service server 30, including the lottery ticket number and

11 whether this is a winning or losing lottery ticket (S631).

12 When the instant type lottery ticket selling step (S610) has been completed in the way

13 described above, the winnings-payment-requirement-setting step (S640), in which requirements are

14 set for paying the winnings when the sold instant type lottery ticket is a winning ticket, is carried out,

15 and a detailed description of the step S640 will be omitted since it is the same as the winnings-

16 payment-requirement-setting step (S530) shown in FIG. 11B.

17 When the lottery ticket purchased by means of the lottery ticket selling service is a winning

18 ticket and the user selects the bank payment from the various winnings payment service, the user can

19 receive the winnings from a designated bank according to a process of the winnings payment service

20 as shown in FIG. 14, which will be described below. Referring to FIG. 14, the control section 21 of

21 the terminal 20 carries out a card verification step (S650), in which it is confirmed if the IC card 10

1   is normal, and then displays the main menu on the display section 23 (S651).

2   When the user selects an instant type lottery winnings payment service from the main menu

3   by means of the input section 22 (S652), the control section 21 displays a message on the display

4   section 23 which requires the user to input the user's user identification code and the secret code

5   when buying the lottery ticket (S653).

6   The control section 21 transmits the user identification code and the secret code, which the

7   user inputted through the input section 22, to the service server 30 through the communication

8   section 28 (S654). In the meantime, the control section 31 of the service server 30 searches for the

9   user identification code received through the communication section 33 from the terminal 20, in the

10   lottery ticket information stored as a database in the lottery ticket sale information storage section

11   34 (S655), so as to confirm if the user identification code exists there (S656).

12   When the user identification code exists is confirmed to exists in the lottery ticket sale

13   information storage section 34, the control section 31 controls the cipher algorithm section 36 to

14   generate a cipher value for the secret code inputted by the user (S657), and the lottery ticket

15   purchaser verification section 37 compares the generated cipher value with the cipher value already

16   stored in the lottery ticket sale information storage section 34 (S658) so as to judge if the cipher

17   values are the same (S659). In this case, the cipher value already stored in the lottery ticket sale

18   information storage section 34 is a cipher value generated with respect to the secret code inputted

19   by the user when the lottery ticket is sold.

20   When the cipher values are judged to be the same, the control section 31 confirms the lottery

21   ticket information stored in the lottery ticket sale information storage section 34 so as to check

whether lottery ticket sold to the user is a winning or losing ticket, and transmits the winning confirmation information to the terminal 20 (S660). The control section 21 of the terminal 20 displays a predetermined message on the display section 23 according to the checked result received from the service server 30.

That is, when the user identification code inputted through the input section 22 by the user does not exist in the lottery ticket sale information storage section 34 of the service server 30, the control section 21 of the terminal 20 displays a message on the display section 23 refusing to sell the lottery ticket (S661). Further, when the cipher value generated for the secret code inputted through the input section 22 by the user is not the same as the cipher value already stored in the lottery ticket sale information storage section 34, the control section 21 displays a message on the display section 23 reporting that the lottery ticket is not the winning ticket (S662).

On the other hand, when the cipher value generated for the secret code inputted through the input section 22 by the user is the same as the cipher value already stored in the lottery ticket sale information storage section 34, the control section 21 of the terminal 20 displays on the display section 23 the checked result obtained by checking whether the lottery ticket is a winning or losing ticket, and the winnings payment information selected by the user when the lottery ticket is sold (S663). Then, the winnings are paid according to the winnings payment information (S664), and the winnings payment service is completed (S665). Then, the process is ended.

In this case, the control section 21 of the terminal 20 transmits the winnings payment information to the service server 30 when the winnings have been paid, and the control section 31 of the service server 30 stores the winnings payment information in the lottery ticket sale

1   information storage section 34 so as to update the lottery ticket information (S666). Accordingly,

2   the winnings are paid only when not only the user identification codes inputted by the user

3   respectively when the lottery ticket is sold and when the winnings are paid are the same, but also the

4   secret code inputted by the user is correct.

5   The payment of the winnings by the way of the bank payment does not necessarily have to

6   follow the process as described above. The winnings can be paid, for example, by utilizing a method

7   in which the service server reports the information about the winning of the lottery ticket directly

8   to a bank designated by the winner.

9   Meanwhile, in a lottery ticket selling service according to a sixth embodiment of the present

10   invention as shown in FIG. 15, the control section 21 of the terminal 20 carries out a card

11   verification step (S700) in which the IC card 10 used in purchasing the lottery ticket is verified, and

12   an instant type lottery ticket selling step (S710) in which an instant type lottery ticket is sold, and

13   then carries out a winnings-payment-requirement-setting step (S720) in which requirements are set

14   for paying the winnings when the sold instant type lottery ticket is a winning ticket. For this

15   embodiment, a detailed description about the card verification step (S700) and the instant type

16   lottery ticket selling step (S710) will be omitted because they are the same as those in the fourth

17   embodiment shown in FIGs. 11A and 11B.

18   To describe the winnings-payment-requirement-setting step (S720) in detail, at first, the

19   control section 21 of the terminal 20 confirms if the lottery ticket number sold to the user in the

20   instant type lottery ticket selling step (S710) is a winning number (S721). When the lottery ticket

21   is not the winning number, the process returns to the step S710, in which the main menu is displayed

1   again. When the lottery ticket is the winning number, the control section 21 confirms if the winnings

2   for the winning lottery ticket exceed a predetermined amount of money (S722).

3   When the winnings are confirmed to exceed the predetermined amount of money, the control

4   section 21 controls the card reader section 24 to transmit an order to the IC card 10 which requires

5   a transmission of a cipher value for verifying the IC card 10. The control section 11 of the IC card

6   10 controls the cipher algorithm section 13 to generate cipher values for the card secret key and the

7   card information stored in the memory section 12, and then transmits the generated cipher values

8   through the communication section 28 to the terminal 20 (S724).

9   After the cipher values generated in the IC card 10 are transmitted to the service server 30,

10   the control section 21 guides the user to select a method of receiving the winnings by means of the

11   display section 23, and the user selects a method of receiving the winnings by means of the input

12   section 22, according to the guide or menu of the winnings payment methods displayed on the

13   display section 23 (S725).

14   When the user, by means of the input section 22, selects an account transfer as the method

15   of receiving the winnings(S726) and inputs an account number (S727), the control section 21

16   transmits the inputted account transfer information through the communication section 28 to the

17   service server 30 (S728). On the other hand, when the user, by means of the input section 22, selects

18   a bank payment as the method of receiving the winnings (S729), the control section 21 transmits the

19   inputted bank payment information to the service server 30 (S730). Further, when the winnings do

20   not exceed the predetermined amount of money in the step S722, the control section 21 controls the

21   card reader section 24 to store the winnings in the user sector of the memory section 12 of the IC

1   card 10 as lottery ticket deposits (S731).

2   Thereafter, the control section 21 of the terminal 20 completes the lottery ticket selling

3   service (S732), and then the process is ended. In the meantime, the control section 31 of the service

4   server 30 stores the cipher values, received through the communication section 33 from the terminal

5   20, in the lottery ticket sale information storage section 34 as databases (S733), and stores the

6   winnings payment information, received from the terminal 20, in the lottery ticket sale information

7   storage section 34 (S734).

8   When the lottery ticket purchased by means of the lottery ticket selling service is a winning

9   ticket and the user selects the bank payment from the various winnings payment service, the user can

10   receive the winnings from a designated bank according to a process of the winnings payment service

11   as shown in FIG. 16, which will now be described. Referring to FIG. 16, the control section 21 of

12   the terminal 20 carries out a card verification step (S750) in which it is confirmed if the IC card 10

13   is normal and then displays the main menu on the display section 23 (S751).

14   The user selects the instant type lottery ticket winnings payment service from the main menu

15   by means of the input section 22 (S752) and the control section 21 displays a message requiring the

16   user to input the user's user identification code on the display section 23 (S753). When the user has

17   inputted the user identification code through the input section 22, the control section 21 controls the

18   card reader section 24 to read the card information stored in the memory section 12 (S754), and

19   transmits the inputted user identification code and the read card information to the service server 30

20   through the communication section 28 (S755).

21   In the meantime, the control section 31 of the service server 30 searches for the user

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1 identification code, received through the communication section 33 from the terminal 20, in the

2 lottery ticket information stored in the lottery ticket sale information storage section 34 (S756), so

3 as to confirm if the received user identification code exists there (S757). When the user identification

4 code is confirmed to exists, the cipher algorithm section 36 generates a card secret key by means of

5 the card information received from the terminal 20, according to the control of the control section

6 31 (S758), and generates a cipher value for the generated card secret key and the card information

7 (S759).

8 Further, the lottery ticket purchaser verification section 37 compares the cipher value

9 generated in the cipher algorithm section 36 with the cipher value already stored in the lottery ticket

10 sale information storage section 34 (S760), so as to judge if they are the same (S761). In this case,

11 the cipher value stored in the lottery ticket sale information storage section 34 is a value generated

12 in the IC card 10 when the lottery ticket selling service is carried out according to the sixth

13 embodiment of the present invention as shown in FIG. 15.

14 When the cipher value generated in the service server 30 is judged in the comparison to be

15 equal to the cipher value already stored in the lottery ticket sale information storage section 34, the

16 control section 31 confirms the lottery ticket information stored in the lottery ticket sale information

17 storage section 34 so as to check if the lottery ticket sold to the user is a winning ticket, and then

18 transmits the checked result to the terminal 20 (S762).

19 The control section 21 of the terminal 20 displays a predetermined message on the display

20 section 23 according to the checked result received from the service server 30. That is, when the user

21 identification code inputted through the input section 22 by the user does not exist in the lottery

ticket sale information storage section 34 of the service server 30, the control section 21 displays a message on the display section 23 refusing to sell the lottery ticket (S763).

Further, when the cipher values are determined to not be the same in the comparison in the step S761 in which the cipher values are compared by the service server 30, the control section 21 of the terminal 20 displays a message on the display section 23 informing that the lottery has been lost (S764).

When the cipher values are determined to be the same in the comparison in the step S761 in which the cipher values are compared by the service server 30, the control section 21 displays on the display section 23 the checked result, obtained by checking the display section 23 for the winning or the losing, and displays the winnings payment information selected by the user when the user purchases the lottery ticket, (S765). Then, the winnings are paid according to the winnings payment information (S767), and the winning reference service is completed (S768). Then, the process is ended.

In this case, the control section 21 of the terminal 20 transmits the winnings payment information to the service server 30 when the winnings have been paid, and the control section 31 of the service server 30 stores the winnings payment information in the lottery ticket sale information storage section 34 so as to update the lottery ticket information (S769). Therefore, the winnings are paid only when not only the user identification codes inputted by the user respectively when the lottery ticket is sold and when the winnings are paid are the same, but also the card information stored in the IC card 10 is equal to the cipher value generated for the card secret key.

In this case, the payment of the winnings by the way of the bank payment does not

1 necessarily have to follow the process as described above, but the winnings can be paid, for example,

2 by utilizing a method in which the service server reports the information about the lottery ticket

3 winning, directly to a bank designated by the winner.

4 Meanwhile, in a lottery ticket selling service according to a seventh embodiment of the

5 present invention as shown in FIGs. 17A and 17B, the control section 21 of the terminal 20 carries

6 out a card verification step (S800), in which the IC card 10 used in purchasing the lottery ticket is

7 verified to be normal, and the control section 21 then carries out an instant type lottery ticket selling

8 step (S810), in which an instant type lottery ticket is sold to a card verified to be a normal card.

9 In the instant type lottery ticket selling step (S810), the control section 21 of the terminal 20

10 displays a main menu (S811). Then, the user chooses the instant type lottery ticket selling service

11 from the main menu by means of the input section 22 (S812), and inputs the user identification code

12 according to the requirement displayed on the display section 23 to input the user's user

13 identification code (S813). The control section 21 transmits the user identification code inputted

14 through the input section 22 by the user, through the communication section 28 to the service server

15 30 (S814).

16 In the meantime, when the user identification code has been received through the

17 communication section 33 from the terminal 20, the control section 31 of the service server 30

18 checks the inputted user identification code (S815), so as to verify if the user of the IC card 10, who

19 wants to buy the lottery ticket by means of the terminal 20, is an adult (S816).

20 When the user of the IC card 10 is verified to be an adult, the lottery ticket sale information

21 storage section 34 stores the inputted user identification code as a database value according to the

control of the control section 31 (S817) and transmits the verified result of the user identification code to the terminal 20.

According to the checked result of the user identification code received through the communication section 28, the control section 21 returns the process to the step S811, in which the main menu is displayed again, when the user of the IC card 10 is not an adult. On the other hand, the control section 21 displays a message requiring the user to select the kind of the instant type lottery ticket he or she want to buy when the user of the IC card 10 is an adult (S818).

When the user selects the instant type lottery ticket purchase displayed on the display section 23 by means of the input section 22, the control section 21 controls the card reader section 24 to collect the price of the sold lottery ticket by balancing the price from the lottery ticket dedicated fund stored in the user sector of the memory section 12 of the IC card 10 (S819), and reads the intrinsic lottery ticket information stored in the memory section 12 of the IC card 10 (S820). In this case, the intrinsic lottery ticket information is information which is stored in the issuer preparation sector and assigned to each IC card 10 issued for purchasing the lottery ticket.

The control section 21 transmits an order through the communication section 28 to the service server 30 requesting the read intrinsic lottery ticket information and the lottery ticket number (S821). In the meantime, the control section 31 of the service server 30 controls the lottery ticket information generation section 35 to generate the lottery ticket number according to the request for the lottery ticket number received through the communication section 33 from the terminal 20 (S822), and confirms if the generated lottery ticket number is a winning number (S823).

When the generated lottery ticket number is confirmed to be a winning number, the control

1   section 31 stores the winning number in the lottery ticket sale information storage section 34 as a

2   database (S824), and transmits the generated lottery ticket number together with information

3   indicating that the lottery ticket has won to the terminal 20 (S825). When the generated lottery ticket

4   number is not the winning number, the control section 31 transmits the fact that the lottery ticket is

5   not a winning ticket, together with the generated lottery ticket number, to the terminal 20 (S826).

6   Further, when the generated lottery ticket number is the winning number, the control section

7   31 transmits this fact to the terminal 20 and then controls the cipher algorithm section 36 to generate

8   a cipher value for the intrinsic lottery ticket information received in the terminal 20 (S827) and stores

9   the generated cipher value in the lottery ticket sale information storage section 34 (S828).

10   The control section 21 of the terminal 20 displays the lottery ticket purchase result received

11   through the communication section 28 from the service server 30, including the lottery ticket number

12   and whether the lottery ticket has won or lost, on the display section 23 (S829).

13   When the instant type lottery ticket selling step (S810) has been completed, the control

14   section 21 carries out a winnings-payment-requirement-setting step (S830), in which requirements,

15   or parameters, for paying the winnings when the sold instant type lottery ticket is a winning ticket

16   are set, and a detailed description of which will be omitted since it is the same as the winnings-

17   payment-requirement-setting step (S530) shown in FIG. 11B.

18   When the lottery ticket purchased by means of the lottery ticket selling service is a winning

19   ticket and the user selects the bank payment from the various winnings payment service, the user can

20   receive the winnings from a designated bank according to a process of the winnings payment service

21   as shown in FIG. 18, which will now be described. Referring to FIG. 18, the control section 21 of

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1 the terminal 20 carries out a card verification step (S850), in which if the IC card 10 is normal is

2 confirmed, and then displays the main menu on the display section 23 (S851).

3 The user selects the instant type lottery ticket winnings payment service from the main menu

4 by means of the input section 22 (S852), and the control section 21 displays a message on the display

5 section 23 which requires the user to input the user's user identification code (S853). When the user

6 has inputted the users user identification code through the input section 22, the control section 21

7 controls the card reader section 24 to read the intrinsic card information stored in the memory section

8 12 of the IC card 10 (S854) and transmits the inputted user identification code and the read intrinsic

9 card information to the service server 30 through the communication section 28 (S855).

10 In the meantime, the control section 31 of the service server 30 searches for the user

11 identification code, received through the communication section 33 from the terminal 20, from the

12 lottery ticket information stored in the lottery ticket sale information storage section 34 (S856), so

13 as to confirm if the received user identification code exists there (S857).

14 When the user identification code is confirmed to exist, the cipher algorithm section 36

15 generates a cipher value for the intrinsic card information received from the terminal 20, according

16 to the control of the control section 31 (S858). The lottery ticket purchaser verification section 37

17 compares the cipher value generated by the cipher algorithm section 36 with the cipher value already

18 stored in the lottery ticket sale information storage section 34 (S859), so as to judge if the cipher

19 values are the same (S860). In this case, the cipher value already stored in the lottery ticket sale

20 information storage section 34 is a value generated for the intrinsic lottery ticket information stored

21 in the IC card 10 used to purchase the lottery ticket according to the seventh embodiment of the

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1 present invention as shown in FIGs. 17A and 17B.

2 When the cipher value generated in the service server 30 is judged to be equal to the cipher

3 value already stored in the lottery ticket sale information storage section 34, the control section 31

4 confirms the lottery ticket information stored in the lottery ticket sale information storage section

5 34, so as to check if the lottery ticket sold to the user is a winning ticket, and then transmits the

6 checked result to the terminal 20 (S861). The control section 21 of the terminal 20 displays a

7 predetermined message on the display section 23 according to the checked result received from the

8 service server 30.

9 That is, when the user identification code inputted through the input section 22 by the user

10 does not exist in the lottery ticket sale information storage section 34 of the service server 30, the

11 control section 21 of the terminal 20 displays a message on the display section 23 refusing to sell

12 the lottery ticket (S862).

13 Further, when the cipher values are not the same in the comparison in the step S860 in which

14 the cipher values are compared in the service server 30, the control section 21 of the terminal 20

15 displays a message informing of loss of the lottery on the display section 23 (S863).

16 When the cipher values are determined to be the same in the comparison in the step S860 in

17 which the cipher values are compared in the service server 30, the control section 21 of the terminal

18 20 displays on the display section 23 the checked result of whether the lottery ticket has won or lost

19 and displays the winnings payment information selected by the user when the lottery ticket is sold

20 (S864). Then, the winnings are paid according to the winnings payment information (S865), and the

21 winning reference service is completed (S866). Then, the process is ended.

1   In this case, the control section 21 of the terminal 20 transmits the winnings payment

2   information to the service server 30 when the winnings have been paid, and the control section 31

3   of the service server 30 stores the winnings payment information in the lottery ticket sale

4   information storage section 34 so as to update the lottery ticket information (S867).

5   Accordingly, the winnings are paid only when not only the user identification codes inputted

6   by the user respectively when the lottery ticket is sold and when the winnings are paid are the same,

7   but also the cipher value generated for the intrinsic card information stored in the IC card 10 is equal

8   to the cipher value already stored in the lottery ticket sale information storage section 34.

9   In this case, the payment of the winnings by the way of the bank payment does not

10   necessarily have to follow the process as described above, but the winnings can be paid, for example,

11   by utilizing a method in which the service server reports the information about the winning of the

12   lottery ticket directly to a bank designated by the winner.

13   Meanwhile, in a lottery ticket selling service according to an eighth embodiment of the

14   present invention as shown in FIGs. 19A and 19B, the control section 21 of the terminal 20 carries

15   out an instant type lottery ticket selling step (S910) after carrying out a card verification step (S900)

16   in which the IC card 10 to be used in purchasing the lottery ticket is verified to be normal. In the

17   instant type lottery ticket selling step, the control section 21 of the terminal 20 displays a main menu

18   (S911).

19   Then, the user chooses the instant type lottery ticket selling service from the main menu by

20   means of the input section 22 (S912), and inputs the user identification code according to the

21   requirement displayed on the display section 23 to input the user's user identification code (S913).

1   When the user inputs his or her user identification code through the input section 22, the control

2   section 21 transmits the inputted user identification code through the communication section 28 to

3   the service server 30 (S914).

4   In the meantime, when the user identification code has been received through the

5   communication section 33 from the terminal 20, the control section 31 of the service server 30

6   checks the inputted user identification code (S915) so as to verify that the user of the IC card 10,

7   who want to buy the lottery ticket by means of the terminal 20, is an adult (S916).

8   When the user of the IC card 10 is verified to be an adult, the lottery ticket sale information

9   storage section 34 stores the inputted user identification code as a database value according to the

10   control of the control section 31 (S917) and transmits the verified result of the user identification

11   code to the terminal 20. When the user of the IC card 10 is not an adult according to the checked

12   result of the user identification code received through the communication section 28, the control

13   section 21 returns the process to the step S911, in which the main menu is displayed again. When

14   the user of the IC card 10 is an adult, the control section 21 displays a message requiring the user

15   to select the kind of the instant type lottery ticket he or she want to buy (S918).

16   When the user selects the instant type lottery ticket purchase displayed on the display section

17   23 by means of the input section 22, the control section 21 controls the card reader section 24 to

18   collect the price of the sold lottery ticket by balancing the price from the lottery ticket dedicated fund

19   stored in the user sector of the memory section 12 of the IC card 10 (S919), and transmits an order,

20   which requires the lottery ticket number, through the communication section 28 to the service server

21   30 (S920).

1   In the meantime, the control section 31 of the service server 30 controls the lottery ticket

2   information generation section 35 to generate the lottery ticket number according to the request

3   received through the communication section 33 from the terminal 20 (S921) and confirms if the

4   generated lottery ticket number is a winning number (S922).

5   As a result of the confirmation, when the generated lottery ticket number is the winning

6   number the control section 31 stores the winning number in the lottery ticket sale information

7   storage section 34 as a database value (S923) and controls the lottery ticket information generation

8   section 35 to generate a winning identification code (S924). Thereafter, the control section 31

9   transmits the generated lottery ticket number together with the winning of the lottery ticket and the

10   winning identification code to the terminal 20 (S925).

11   When the generated lottery ticket number is not the winning number, the control section 31

12   transmits the fact that the lottery ticket is not a winning ticket together with the generated lottery

13   ticket number to the terminal 20 (S926). After transmitting the lottery ticket purchase result to the

14   terminal 20 when the generated lottery ticket number is the winning number, the control section 31

15   controls the cipher algorithm section 36 to generate a cipher value for the winning identification code

16   generated in the lottery ticket information generation section 35 (S927) and stores the generated

17   cipher value in the lottery ticket sale information storage section 34 (S928).

18   The control section 21 of the terminal 20 displays the lottery ticket purchase result, including

19   the lottery ticket number and the winning or the losing of the lottery ticket received through the

20   communication section 28 from the service server 30, on the display section 23 (S929). When the

21   winning identification code has been received from the service server 30, the control section 21

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1 controls the card reader section 24 to store the received winning identification code in the user sector

2 of the memory section 12 of the IC card 10 (S930).

3 When the instant type lottery ticket selling step (S910) has been completed, the control

4 section 21 carries out a winnings-payment-requirement-setting step (S940), in which requirements

5 to pay the winnings when the sold instant type lottery ticket is a winning ticket are set, and a detailed

6 description of which will be omitted since it is the same as the winnings-payment-requirement-

7 setting step (S530) shown in FIG. 11B.

8 When the lottery ticket purchased by means of the lottery ticket selling service is a winning

9 ticket and the user selects the bank payment from the various winnings payment service, the user can

10 receive the winnings from a designated bank according to a process of the winnings payment service

11 as shown in FIG. 20, which will be described hereinafter.

12 Referring to FIG. 20, the control section 21 of the terminal 20 carries out a card verification

13 step (S950), in which it is confirmed if the IC card 10 is normal, and then displays the main menu

14 on the display section 23 (S951). The user selects the instant type lottery ticket winnings payment

15 service from the main menu by means of the input section 22 (S952), and the control section 21

16 displays a message on the display section 23 which requires the user to input the user's user

17 identification code (S953).

18 When the user has inputted the user's user identification code through the input section 22,

19 the control section 21 controls the card reader section 24 to read the winning identification code

20 stored in the memory section 12 of the IC card 10 (S954), and transmits the inputted user

21 identification code and the read winning identification code to the service server 30 through the

communication section 28 (S955). In the meantime, the control section 31 of the service server 30

searches for the user identification code, received through the communication section 33 from the

terminal 20, from the lottery ticket information stored in the lottery ticket sale information storage

section 34 (S956), so as to confirm that the received user identification code is there (S957).

When the user identification code is confirmed to exists, the cipher algorithm section 36

generates a cipher value for the winning identification code received from the terminal 20, according

to the control of the control section 31 (S958). The lottery ticket purchaser verification section 37

compares the cipher value generated by the cipher algorithm section 36 with the cipher value already

stored in the lottery ticket sale information storage section 34 (S959), so as to judge if the cipher

values are the same (S960). The cipher value already stored in the lottery ticket sale information

storage section 34 is a value for the winning identification code generated when the lottery ticket

selling service is carried out according to the eighth embodiment of the present invention as shown

in FIGs. 19A and 19B.

When the cipher value generated in the service server 30 is judged to be equal to the cipher

value already stored in the lottery ticket sale information storage section 34, the control section 31

confirms the lottery ticket information stored in the lottery ticket sale information storage section

34, so as to check if the lottery ticket sold to the user is a winning ticket, and then transmits the

checked result to the terminal 20 (S961).

The control section 21 of the terminal 20 displays a predetermined message on the display

section 23 according to the checked result received from the service server 30. That is, when the user

identification code inputted through the input section 22 by the user does not exist in the lottery

ticket sale information storage section 34 of the service server 30, the control section 21 of the terminal 20 displays a message refusing to sell the lottery ticket on the display section 23 (S962).

Further, when the cipher values are not the same in the comparison in the step S960 in which the cipher values are compared in the service server 30, the control section 21 of the terminal 20 displays a message on the display section 23 informing that the lottery ticket has lost (S963).

When the cipher values are the same in the comparison in the step S960 in which the cipher values are compared in the service server 30, the control section 21 displays on the display section 23 the checked result of whether the lottery ticket has won or lost and the winnings payment information selected by the user when the lottery ticket is sold (S964). Then, the winnings are paid according to the winnings payment information (S965), and the winning reference service is completed (S966). Then, the process is ended.

In this case, the control section 21 of the terminal 20 transmits the winnings payment information to the service server 30 when the winnings have been paid, and the control section 31 of the service server 30 stores the winnings payment information in the lottery ticket sale information storage section 34, so as to update the lottery ticket information (S967).

Accordingly, the winnings are paid only when, not only the user identification codes inputted by the user respectively when the lottery ticket is sold and when the winnings are paid are the same, but also the cipher value generated for the winning identification code stored in the IC card 10 is equal to the cipher value already stored in the lottery ticket sale information storage section 34.

As described above, the lottery service system of the present invention includes an integrated circuit card storing fund information for a communication service and a lottery service, lottery ticket

1   information according to the purchase of the lottery ticket, and basic card information, a terminal

2   for receiving the integrated circuit card, reading and writing information in the integrated circuit

3   card, and providing a user interface of a service provided for the user, and a service server

4   communicating with the terminal and providing a communication service and a lottery service for

5   the user. The lottery service system of the present invention sells the lottery ticket to the user of the

6   integrated circuit card, refers if the sold lottery ticket is a winning ticket, and pays the winnings for

7   the winning ticket.

8   Therefore, the user of the integrated circuit card can utilize not only a communication service,

9   but also the lottery service, within the limit of the funds stored in the integrated circuit card. Further,

10   the user can easily purchase a lottery ticket and can be easily paid the winnings, by means of the

11   integrated circuit card. Moreover, in the lottery service system and the lottery service method of the

12   present invention, the information recorded in the integrated circuit card is encoded and then stored

13   in the service server when the lottery ticket is sold, and the winnings are paid only after the

14   information in the integrated circuit card inserted in the terminal is compared with the information

15   already stored in the service server, so that the security can be firmly maintained.

16   While several specific embodiments of the present invention have been illustrated and

17   described, it will be understood by those skilled in the art that the present invention is not limited

18   to these specific embodiments, and various changes and modifications and equivalents may be

19   substituted for elements thereof without departing from the true scope of the present invention.